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# Mineral Industry Surveys

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## VANADIUM IN JULY 2003

Domestic consumption of vanadium in July 2003 was about 3% more than that of the previous month and was about 2% less than that of July 2002, according to the U.S. Geological Survey. Year-to-date consumption of vanadium from January through July was about 4% less than during the same period in 2002. Consumer stocks of vanadium, in all forms, were 209 metric tons (t) at the beginning of 2003 and also 209 t at the end of July.

According to Ryan's Notes (2003b), the range for U.S. ferrovanadium (FeV) prices during July was $5.113 to $5.500 per pound of vanadium content, as compared with $5.363 to $5.769 in June. European FeV, ranged from $10.038 to $10.381 per kilogram of vanadium content in July as compared with $10.238 to $10.575 in June. In July, vanadium pentoxide prices ranged from $1.963 to $2.225 per pound, as compared with $2.175 to $2.450 in June.

Prices of FeV were marginally higher in July after weakening in June. In the United States, FeV spot sales at the end of July were reported at $5.15-$5.50 per pound, and in Europe, prices ranged from $10.20 to $10.50 per kilogram. European traders reported material to be in tight supply and they did not expect the supply to improve quickly as several converters were expected to take summer maintenance shutdowns for 2-3 weeks in August. Shieldalloy Metallurgical Corp. confirmed that its Cambridge, OH, ferrovanadium plant had been shut since June (Ryan's Notes, 2003a).

Representatives from Russian producer Tulachermet-Vanadium (Tulachermet) and their newly appointed sales agent, Switzerland-based Arpicom, went to Japan in early July to market vanadium. Tulachermet appeared to be sticking to its new policy of selling directly to consumers and was also holding their production down to about 50% of capacity in an attempt to support prices. The Russian effort to support the market will hinge on whether South African producers increase shipments later in the year. This could occur if the South African rand weakens to allow greater operating margins. The market's supply discipline in July appeared able to support pricing, but further price gains will depend on increased demand from specialty steel makers (Metal Bulletin Research, 2003).

### References Cited

Metal Bulletin Research, Ferro-alloys Monthly, 2003, Tulachermet speculation the decisive factor in Europe: Metal Bulletin Research, Ferro-alloys Monthly, no. 131, July 29, p. 15.

Ryan's Notes, 2003a, Ferrovanadium prices in the US and Europe are inching up: Ryan's Notes, v. 9, no. 30, July 28, p. 3.

Ryan's Notes, 2003b, [untitled]: Ryan's Notes, v. 9, no. 31, August 4, p. 4.

TABLE 1

U.S. CONSUMPTION AND CONSUMER STOCKS OF VANADIUM, BY FORM[1]

(Kilograms, contained vanadium)

| | 2002[p] | | 2003 | | | |
|---|---|---|---|---|---|---|
| | | | June | | July | |
| | Consumption | Stocks | Consumption | Stocks | Consumption | Stocks |
| Ferrovanadium[2] | 2,790,000 | 189,000 | 242,000 [r] | 200,000 [r] | 245,000 | 197,000 |
| Vanadium-aluminum alloy | W | W | W | W | W | W |
| Other[3] | 351,000 | 20,200 | 20,300 [r] | 11,500 [r] | 25,200 | 12,200 |
| Total | 3,140,000 | 209,000 | 262,000 [r] | 212,000 [r] | 271,000 | 209,000 |

[p]Preliminary. [r]Revised. W Withheld to avoid disclosing company proprietary data; included with "Other."

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes other vanadium-iron-carbon alloys as well as vanadium oxides added directly to steel.

[3]Includes other vanadium alloys, vanadium metal, vanadium pentoxide, vanadates, chlorides, other specialty chemicals, and items indicated by symbol W.

TABLE 2

U.S. CONSUMPTION OF VANADIUM, BY END USE[1]

(Kilograms, contained vanadium)

| | | 2003 | | |
|---|---|---|---|---|
| | 2002[p, r] | June | July | Year to date[2] |
| Steel: | | | | |
| Carbon | 731,000 | 65,900 [r] | 65,200 | 454,000 |
| High-strength low-alloy | 900,000 | 78,600 [r] | 80,400 | 535,000 |
| Stainless and heat-resisting | 37,500 | 2,110 | 2,170 | 15,400 |
| Full alloy | 748,000 | 67,100 | 75,700 | 470,000 |
| Tool | 270,000 | 23,600 | 17,200 | 150,000 |
| Total steel | 2,690,000 | 237,000 [r] | 241,000 | 1,630,000 |
| Superalloys | 12,400 | 867 | 956 | 7,340 |
| Miscellaneous and unspecified[3] | 382,000 | 24,100 [r] | 29,000 | 125,000 |
| Total consumption | 3,080,000 | 262,000 [r] | 271,000 | 1,760,000 |

[p]Preliminary. [r]Revised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous and unspecified."

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]Includes revisions to prior month's data.

[3]Includes cast irons, alloys excluding steel and superalloys, chemical and ceramic uses, and other miscellaneous and unspecified uses.

TABLE 3
U.S. IMPORTS AND EXPORTS OF ALUMINUM-VANADIUM MASTER ALLOY AND VANADIUM METAL, INCLUDING WASTE AND SCRAP[1]

(Kilograms, gross weight)

| | Aluminum-vanadium master alloy | | Vanadium metal, including waste and scrap | |
|---|---|---|---|---|
| | Quantity | Value | Quantity | Value |
| Imports for consumption: | | | | |
| 2002 | 97,500 | $206,000 | 32,300 | $1,270,000 |
| 2003: | | | | |
| April | -- | -- | 223 | 33,100 |
| May | 16,500 | 31,600 | 7,500 | 108,000 |
| June: | | | | |
| Brazil | 40,600 | 53,400 | -- | -- |
| Canada | 17,100 | 33,600 | -- | -- |
| Germany | -- | -- | 14,200 | 221,000 |
| United Kingdom | -- | -- | 1 | 9,930 |
| Total | 57,700 | 87,000 | 14,200 | 231,000 |
| Year to date | 142,000 | 226,000 | 38,000 | 712,000 |
| Exports: | | | | |
| 2002 | 529,000 | 11,700,000 | 49,200 | 898,000 |
| 2003: | | | | |
| April | 94,500 | 957,000 | 32,500 | 150,000 |
| May | 470,000 | 1,070,000 | 26,700 | 444,000 |
| June: | | | | |
| Argentina | 719 | 14,800 | -- | -- |
| Austria | -- | -- | 711 | 36,800 |
| Canada | 642,000 | 1,360,000 | -- | -- |
| Germany | -- | -- | 8,020 | 89,800 |
| Japan | 1,590 | 6,880 | 674 | 15,400 |
| Korea, Republic of | 7,710 | 26,000 | 48,000 | 176,000 |
| Mexico | 22,600 | 37,800 | -- | -- |
| United Kingdom | 24,300 | 87,600 | 14 | 19,100 |
| Total | 699,000 | 1,530,000 | 57,400 | 337,000 |
| Year to date | 1,520,000 | 6,720,000 | 184,000 | 3,510,000 |

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 4
U.S. IMPORTS AND EXPORTS OF FERROVANADIUM, VANADIUM PENTOXIDE (ANHYDRIDE) AND OTHER OXIDES AND HYDROXIDES OF VANADIUM[1]

(Kilograms, contained vanadium)

| | Ferrovanadium | | Vanadium pentoxide (anhydride)[2] | | Other oxides and hydroxides of vanadium | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value |
| Imports for consumption: | | | | | | |
| 2002 | 2,520,000 | $19,400,000 | 406,000 | $1,990,000 | 42,300 | $560,000 |
| 2003: | | | | | | |
| April | 50,100 | 374,000 | 57,500 | 270,000 | -- | -- |
| May | 15,500 | 190,000 | 81,000 | 558,000 | 6,930 | 117,000 |
| June: | | | | | | |
| Austria | 15,500 | 188,000 | -- | -- | -- | -- |
| Canada | 15,600 | 213,000 | -- | -- | -- | -- |
| Germany | -- | -- | 51 | 18,000 | -- | -- |
| Israel | -- | -- | -- | -- | 4,030 | 68,200 |
| Russia | -- | -- | -- | 3,280 | -- | -- |
| South Africa | -- | -- | 70,400 | 559,000 | -- | -- |
| Switzerland | 94,600 | 1,060,000 | -- | -- | -- | -- |
| Total | 126,000 | 1,460,000 | 70,500 | 580,000 | 4,030 | 68,200 |
| Year to date | 440,000 | 4,370,000 | 320,000 | 2,180,000 | 17,300 | 313,000 |
| Exports: | | | | | | |
| 2002 | 142,000 | 1,550,000 | 91,200 | 568,000 | 203,000 | 1,700,000 |
| 2003: | | | | | | |
| April | 44,500 | 686,000 | 39,600 | 306,000 | 5,700 | 62,500 |
| May | 15,600 | 249,000 | 17,800 | 170,000 | 16,900 | 214,000 |
| June: | | | | | | |
| Brazil | 151 | 3,190 | -- | -- | -- | -- |
| Canada | 8,160 | 127,000 | | | 32,100 | 303,000 |
| China | -- | -- | 2,870 | 27,300 | -- | -- |
| Germany | -- | -- | -- | -- | 5,990 | 50,200 |
| India | -- | -- | -- | -- | 1,360 | 19,700 |
| Japan | -- | -- | 7,840 | 74,500 | -- | -- |
| Mexico | 10,000 | 132,000 | -- | -- | -- | -- |
| Trinidad and Tobago | -- | -- | 2,000 | 21,900 | -- | -- |
| Total | 18,300 | 262,000 | 12,700 | 124,000 | 39,400 | 373,000 |
| Year to date | 259,000 | 3,490,000 | 144,000 | 1,230,000 | 114,000 | 1,180,000 |

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

[2]May include catalysts containing vanadium pentoxide.

Source: U.S. Census Bureau.

TABLE 5

U.S. IMPORTS FOR CONSUMPTION OF VANADIUM-BEARING ASH, SLAG[1]

(Kilograms, contained vanadium pentoxide)

| | Ash and residues | | Ash and residues (not from the manufacture of iron and steel) | | Slag, from the manufacture of iron and steel | |
|---|---|---|---|---|---|---|
| | Quantity | Value | Quantity | Value | Quantity | Value |
| 2002 | 3,830,000 | $520,000 | 10,300,000 | $1,560,000 | 243,000,000 | $19,900,000 |
| 2003: | | | | | | |
| April | 150,000 | 52,300 | 906,000 | 131,000 | 778,000 | 85,400 |
| May | 798,000 | 132,000 | 675,000 | 122,000 | 906,000 | 337,000 |
| June: | | | | | | |
| Canada | -- | -- | 1,530,000 | 283,000 | 83,200,000 | 1,110,000 |
| United Kingdom | -- | -- | 97,700 | 116,000 | -- | -- |
| Total | -- | -- | 1,630,000 | 399,000 | 83,200,000 | 1,110,000 |
| Year to date | 1,060,000 | 198,000 | 5,300,000 | 1,150,000 | 90,700,000 | 1,950,000 |

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 6

U.S. IMPORTS FOR CONSUMPTION OF MISCELLANEOUS VANADIUM CHEMICALS[1]

(Kilograms, contained vanadium)

| | Sulfates | | Vanadates | |
|---|---|---|---|---|
| | Quantity | Value | Quantity | Value |
| 2002 | 14,100 | $390,000 | 48,100 | $567,000 |
| 2003: | | | | |
| April | -- | -- | 270 | 4,060 |
| May | -- | -- | 6,480 | 68,200 |
| June: | | | | |
| Germany | -- | -- | 53 | 17,400 |
| South Africa | -- | -- | 2,650 | 53,000 |
| Total | -- | -- | 2,700 | 70,400 |
| Year to date | -- | -- | 22,300 | 295,000 |

-- Zero.

[1]Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.